

THE AMERICAN GENERA OF ASILIDAE (DIPTERA): KEYS FOR IDENTIFICATION WITH AN ATLAS OF FEMALE SPERMATHECAE AND OTHER MORPHOLOGICAL DETAILS. IX. 5. SUBFAMILY ASILINAE LEACH, *LOCHMORHYNCHUS* - GROUP, WITH A CATALOGUE OF THE NEOTROPICAL SPECIES¹

LOS GENEROS AMERICANOS DE ASILIDAE (DIPTERA): CLAVES PARA SU IDENTIFICACION, CON UN ATLAS DE LAS ESPERMATECAS DE LAS HEMBRAS Y OTROS DETALLES MORFOLOGICOS. IX. 5. SUBFAMILIA ASILINAE LEACH, GRUPO LOCHMORHYNCHUS, CON UN CATALOGO DE LAS ESPECIES NEOTROPICALES¹

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ABSTRACT

Only two genera are recognized in the *Lochmorhynchus* -group of Asilinae (Asilidae): *Apotinoecerus* Hull, 1962, and *Lochmorhynchus* Engel, 1930 (= *Philonerax* Bromley, 1932; = *Lonchodogonus* Hull, 1962; = *Eremomyia* Artigas, 1970; = *Eretomyia* Artigas, 1971). A catalogue of the neotropical species is given.

KEYWORDS: America, Asilidae, *Lochmorhynchus*, *Apotinoecerus*, Taxonomy, Key, Catalogue.

RESUMEN

Se consideran sólo dos géneros en el grupo *Lochmorhynchus* de Asilinae (Asilidae): *Apotinoecerus* Hull, 1962 y *Lochmorhynchus* Engel, 1930 (= *Philonerax* Bromley, 1932; = *Lonchodogonus* Hull, 1962; *Eremomyia* Artigas, 1970; = *Eretomyia* Artigas, 1971). Se agrega un catálogo de las especies neotropicales.

PALABRAS CLAVES: América, Asilidae, *Lochmorhynchus*, *Apotinoecerus*, Taxonomía, Clave, Catálogo.

INTRODUCTION

This is the part IX.5 of a series of papers intended as a preliminary effort to define the American genera of Asilidae, describing the new genera, preparatory to the elaboration of a catalogue of Neotropical species for inclusion in the forthcoming World Catalogue of Flies, now being prepared by the U.S. Department of Agri-

culture and U.S. National Museum of Natural History, Washington D.C.

Previous parts of this series were published as follows:

Part I (Key to subfamilies, subfamily Leptogastrinae): Gayana, Zool. 52(1-2): 95-114, 1988;

Part II (Dasypogoninae): Gayana, Zool. 52(3-4): 199-260, 1988;

Part III (Trigonimiminae): Bol. Soc. Biol. Concepción, 60: 35-41, 1989;

Part IV (Laphriinae, except Atomosiini): Bolm. Mus. paraense E. Goeldi, Zool. 4(2): 211-255, 1988;

Part V (Stichopogoninae): Bol. Soc. Biol. Concepción, 61: 39-47, 1990;

Part VI (Laphriinae, Atomosiini): Gayana, Zool. 55(1): 53-87, 1991;

Part VII.1 (Stenopogoninae, key to tribes): Gayana, Zool. 55(2): 139-144, 1991.

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Part VII.2 (Stenopogoninae, Tribes Acronychini, Bathypogonini and Ceraturgini): Gayana, Zool. 55(3): 247-255, 1991;

Part VII.3 (Stenopogoninae, Tribes Dioctriini and Echthodopini): Gayana, Zool. 55(4): 261-266, 1992;

Part VII.4 (Stenopogoninae, Tribe Enigmomorphini): Bol. Soc. Biol. Concepción 62: 27-53, 1992;

Part VII.5 (Stenopogoninae, Tribe Tillobromini): Rev. chil. Ent. 19: 17-27, 1992;

Part VII.6 (Stenopogoninae, Tribes Phellini, Plesiommatini, Stenopogonini and Willistonini): Gayana, Zool. 57(2): 309-321, 1994;

Part VII.7 (Stenopogoninae, Tribe Cyrtopogonini): Bol. Soc. Biol. Concepción 62: 55-81, 1992;

Part VIII (Laphystiinae): Arquivos de Zoologia, São Paulo

Part IX.1 (Asilinae, key to generic group): Arquivos de Zoologia, São Paulo

Part IX.2 (Asilinae, *Efferia*-group): Arquivos de Zoologia, São Paulo

Part IX.3 (Asilinae, *Eichoichemus*-group): Gayana, Zool. 59 (1)

Part IX.4 (Asilinae, *Glaphyropyga*-group): Bol. Soc. Biol. Concepción

MATERIAL AND METHODS

The material used in this series belongs to the Museu de Zoologia da Universidade de São Paulo, Brasil, and to the Departamento de Zoología de la Universidad de Concepción, Chile.

The methodology employed in the dissection and preservation of the male terminalia, fe-

male spermathecae and other morphological parts is the same employed by Artigas (1971).

A classification of the Asilidae in 9 subfamilies has been adopted. Artigas, J.N. & N. Papavero 1988 (same series: II Dasypogoninae) indicated only 8. The classification follows, basically, the one adopted by Papavero (1973), with the elevation of Stichopogoninae to subfamily rank, and the Apocleinae Papavero are included within the Asilidae. The Leptogastrinae are herein considered as a subfamily of Asilidae.

In morphology and terminology we have followed J.F. McAlpine (1981).

LIST OF ABBREVIATIONS

AMST: Zoölogisch Museum, Amsterdam

BMNH: British Museum (Natural History), London

CNPq : Conselho Nacional de Desenvolvimento Científico e Tecnológico

FAPESP : Fundação de Amparo à Pesquisa do Estado de São Paulo

MNHNP: Muséum National d'Histoire Naturelle, Paris

MUN: Zoologische Sammlung des Bayerischen Staates, Munich

MZUSP: Museu de Zoologia, Universidade de São Paulo

SANT: Museo Nacional de Historia Natural, Santiago

UCCS : Departamento de Zoología, Universidad de Concepción

UCCC: Colecciones Científicas, Universidad de Concepción

WIEN: Naturhistorisches Museum, Wien

RESULTS

Lochmorhynchus-group

KEY TO AMERICAN GENERA:

1. Antennal flagellum with 3 flagellomeres: the first longer than combined length of scape and pedicel, 6-8 times as long as wide; second very short, ring-like; third 1/4 length of first (Fig. 1). Male epandria 2.5-3 times as long as wide, sternite 8 (hypandrium) produced, with long, dense, apical hairs (Figs. 3-5). Aedeagus as in Fig. 6. Ovipositor cylindrical, slightly longer than segments 6-7 (Figs. 7-8). Spermathecae as in Fig. 9. Length, 14-17 mm. (Argentina)
..... *Apotinocerus* Hull, 1962

Antennal flagellum with 3 or 2 flagellomeres: the basal flagellomere no more than 4 times as long as wide and subequal in length to the combined scape and pedicel; apical flagellomere (third or second, depending on the case) subequal to basal flagellomere or shorter (Figs. 10, 18, 25, 33, 41). Male terminalia very variable - from situated on

the same axis of the body to forming a 90° angle with the body axis. Male epandria from relatively slender and elongate (e.g., Figs. 43-44) to more or less globose (e.g., Figs. 12-13, 27-29). Male hypandrium extremely variable: from more or less conical and robust with a small bifid process at the apex (Fig. 27) to strongly flattened with two divergent apical processes (Fig. 21) to flattened and short, forming two widely separated triangular plates emerging from a common narrow basis; hypandrium normally bearing very dense, long hairs which conceal completely the interior of the terminalia (e.g., Figs. 12, 35). Aedeagus as in Figs. 14, 22, 36, sometimes with very complicated structures (Fig. 46). Ovipositor also extremely variable: from conical to strongly compressed laterally, short or very long (Figs. 15-16, 23, 30-31, 37-40, 47). Spermathecae as in Figs. 17, 24, 32, 48. Length, 15-32 mm. (Chile, Argentina) *Lochmorhynchus* Engel, 1930

Genus *Apotinocerus* Hull
(Figs. 1-9)

Apotinocerus Hull, 1956: 69. Type-species, *Proctacanthus brevistylatus* Wulp (orig. des.)
brevistylatus (Wulp), 1882: 111 (*Proctacanthus*). Type-locality: Argentina. HT: male, AMST (Left antenna missing, flagellum of right antenna missing). (There are several specimens in MUN; it was actually Hermann who recognized this genus and who gave it the manuscript name *Apotinocerus*, profited by Hull).

Genus *Lochmorhynchus* Engel
(Figs. 18-48)

Lochmorhynchus Engel, 1930: 459. Type-species, *Proctacanthus senectus* Wulp (orig. des.).
Philonerax Bromley, 1932: 270. Type-species, *Asilus mucidus* Walker (orig. des.), *n. syn.*
Lonchodogonus Hull, 1962: 496. Type-species, *cribratus* Hull (orig. des.), *n. syn.*
Eremomyia Artigas, 1970a: 284 (preocc. Stein, 1898). Type-species, *tumbrensis* Artigas (orig. des.), *n. syn.*
Eretomyia Artigas, 1971: 36 (nom. nov. for *Eremomyia* Artigas). Type-species, *Eremomyia tumbrensis* Artigas (aut.), *n. syn.*

be relatively short, covering only half of the abdomen (especially in some females), may cover the basal 4/5 of the abdomen, or may be as long as the abdomen. The male Costa may be expanded or not; when expanded, showing various degrees. The posterior tibia in some species has a great expansion at the apex, in the males, sometimes produced into a beak, which may also be present in the middle and fore tibiae (the genus *Eretomyia* Artigas was created for species that have this character). As there exists a great number of combinations of all these characters, and it is sometimes very difficult to ascertain which female belongs to a male, we have preferred to consider all this complex as a single genus, waiting for a future revision of the genus (which has several undescribed species) to decide whether it can or cannot be further separated into genera.

LIST OF SPECIES:

albicans (Carrera & d'Andretta), 1953: 7 (*Erax*). Type-locality: Peru, Pachacámac, near Lima. HT: MZUSP.
albinigrus Artigas, 1981: 187, figs. 1-7. Type-locality: Argentina, Córdoba, San Juan. HT: UCCC.
albispinosus (Macquart), 1850: 388 (1850: 84), pl. 8, fig. 7 (only body; wings belong to *longiterebratus*) (*Erax*). Type-locality: South America. TP: MNHNP.
horrori Artigas, 1970a: 288, figs. 261, 264, 268, 270, 496. Type-locality: Chile, Ñuble, Chillán. Distr.- Chile (Bío-Bío, Concepción, Curicó, Linares, Malleco, Ñuble, Santiago, Valparaíso). Ref.- Artigas, 1971: 36, figs. 89-90. HT: UCCC.
chilechicoensis (Artigas), 1970a: 344, figs. 366-

This group is in badly need of a revision. The male and the female terminalia are extremely variable, as shown in the key. Moreover, the length of the wing is variable - the wing can

- 370, 500 (*Philonerax*). Type-locality: Chile, Aysén, Chile-Chico, Lag. Buenos Aires. Distr.- Chile (Aysén). Ref.- Artigas, 1970: 47, figs. 120-121. HT: UCCC. *n. comb.*
- cribratus* (Hull), 1962: 496, figs. 209, 751, 1435, 1444, 2256, 2281, 2373, 2382 (*Lonchodogonus*). Type-locality: unknown (according to Hull believed to be from the Cordilleran region of South America). TP: MUN. *n. comb.*
- griseus* (Guérin-Méneville), 1830: 292 (*Asilus*). Type-locality: Chile. Distr.- Chile (Arauco, Bío-Bío, Cautín, Concepción, Coquimbo, Curicó, Malleco, Maule, Ñuble, O'Higgins, Santiago, Valparaíso). Ref.- Artigas, 1971: 37, figs. 87-88; Artigas & Reyes, 1975: 199, figs. 4-6, 12. TP: MNHP.
- cinereus* Philippi, 1865: 693 (*Erax*). Type-locality: Chile, Santiago, Colchagua. TP: SANT.
- albescens* Schiner, 1868: 180 (*Erax*). Type-locality: Chile. TP: WIEN.
- leoninus* Artigas, 1970b: 67, figs. 1-4. Type-locality: Chile, Tarapacá, Mollepampa, Lluta, km 41-42. Distr.- Southern Peru, northern Chile (Tarapacá). HT: UCCC.
- longiterebratus* (Macquart), 1850: 387 (1850: 83), pl. 8, fig. 7 ("only wings; body belongs to *L. albispinosus*") (*Erax*). Type-locality: Argentina, Patagonia. TP lost.
- mucidus* (Walker), 1837: 340 (*Asilus*). Type-locality: Argentina, Puerto Santa Elena. Distr.- Argentina (from Lake Nahuel Huapi to Puerto Santa Elena). Ref.- Bromley, 1932: 279, figs. 23, 24a-c; Artigas, 1970a: 342, figs. 363-365, 411. TP: BMNH. *n. comb.*
- puntarenensis* Artigas, 1970a: 294, figs. 262, 263b, 271, 272, 431. Type-locality: Chile, Magallanes, Punta Arenas. Distr.- Chile (Magallanes). Ref.- Artigas, 1971: 37, figs. 91-92. HT: UCCC.
- senectus* (Wulp), 1882: 110 (*Proctacanthus*). Type-locality: Argentina. ST: AMST (In bad shape, eaten by dermestids, the two syntypes without terminalia and only parts of the abdomen left).
- tumbrensis* (Artigas), 1970a: 285, figs. 253-260, 479 (*Eremomyia*). Type-locality: Chile, Antofagasta, Tumbre. Distr.- Chile (Antofagasta). Ref.- Artigas, 1971: 36, figs. 85-86. HT: UCCC. *n. comb.*

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INDEX

(Synonyms in bold and italics)

albescens (Schiner), 1868 (*Erax*), *Lochmorhynchus*
albicans (Carrera & d'Andretta), 1953 (*Erax*), *Lochmorhynchus*, figs. 25-32
albinigrus Artigas, 1981, *Lochmorhynchus*
albispinosus (Macquart), 1850 (*Erax*), *Lochmorhynchus*
Apotinocerus Hull, 1956

horrori Artigas, 1970, *Lochmorhynchus*, figs. 33-38
brevistylatus (Wulp), 1882 (*Proctacanthus*), *Apotinocerus*, figs. 1-9

chilechicoensis (Artigas), 1970 (*Philonerax*), *Lochmorhynchus*, figs. 39-40
cinereus (Philippi), 1865 (*Erax*), *Lochmorhynchus*
cribratus (Hull), 1962 (*Lonchodogonus*), *Lochmorhynchus*

Eremomyia Artigas, 1970
Eretomyia Artigas, 1971

griseus (Guérin-Ménéville), 1830 (*Asilus*), *Lochmorhynchus*

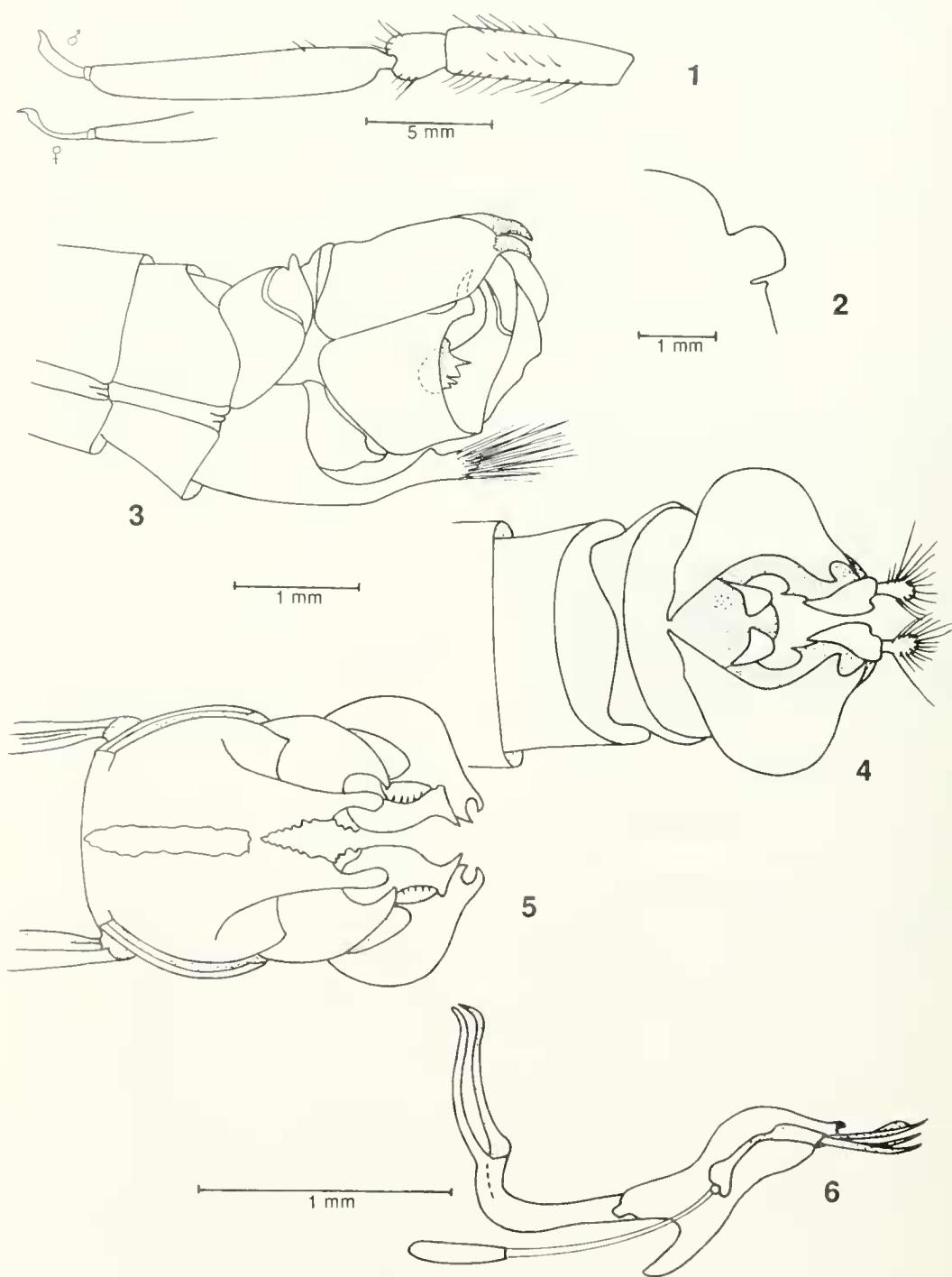
leoninus Artigas, 1970, *Lochmorhynchus*
Lochmorhynchus Engel, 1930
Lonchodogonus Hull, 1832
longiterebratus (Macquart), 1850 (*Erax*), *Lochmorhynchus*

mucidus (Walker), 1837 (*Asilus*), *Lochmorhynchus*, figs. 18-24

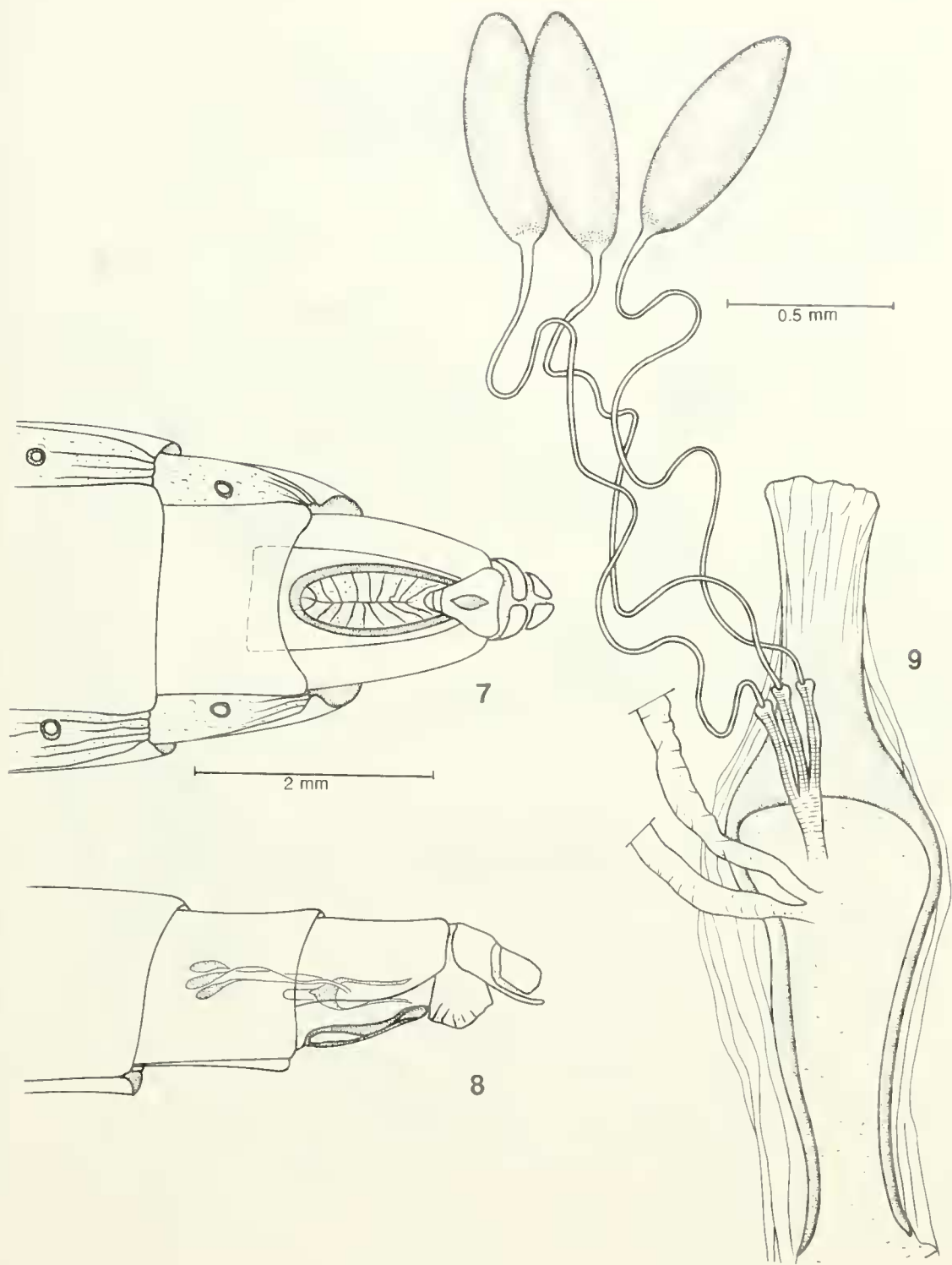
Philonerax Bromley, 1932
puntarenensis Artigas, 1970, *Lochmorhynchus*

senectus (Wulp), 1882 (*Proctacanthus*), *Lochmorhynchus*

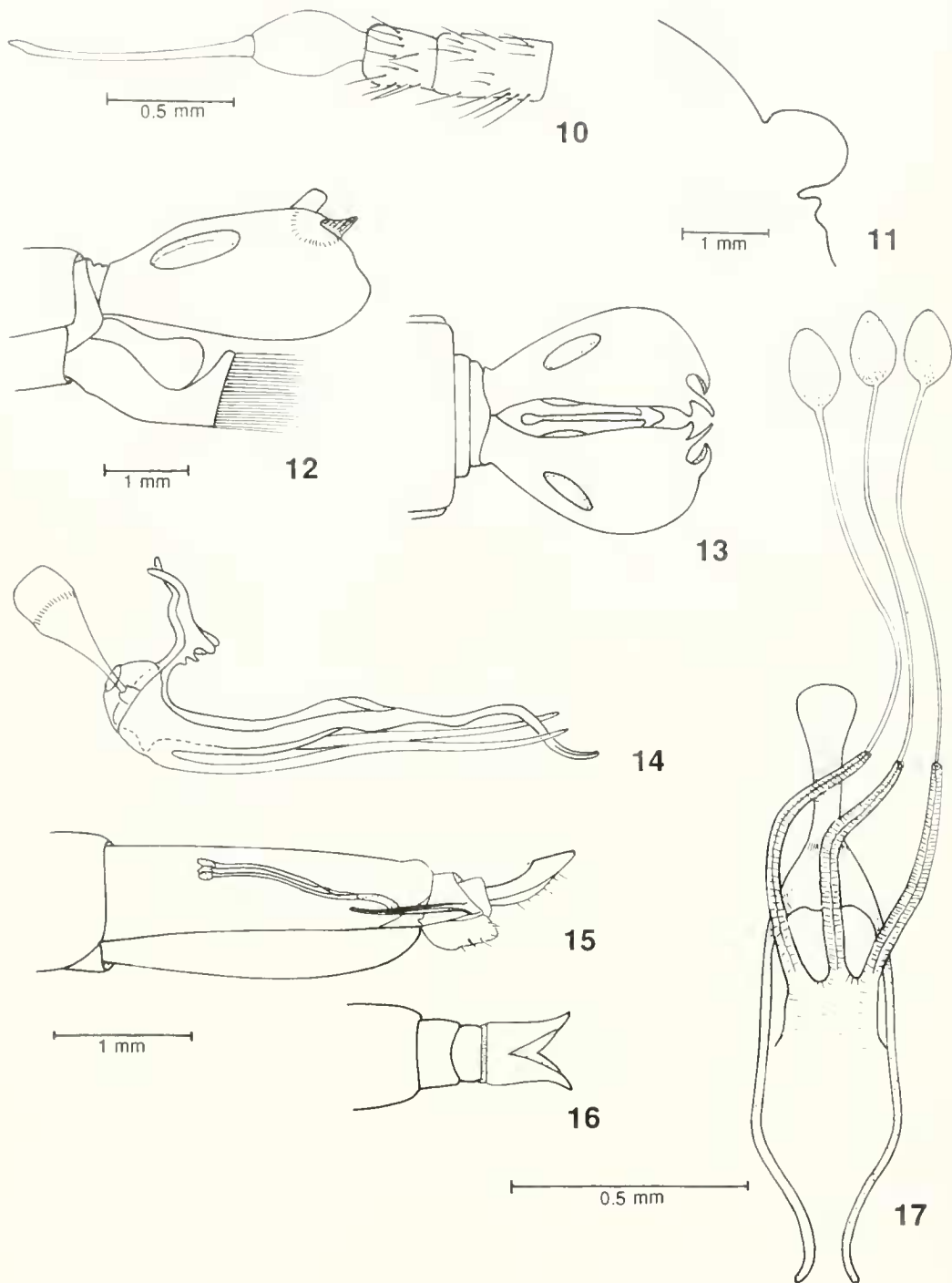
tumbrensis (Artigas), 1970 (*Eremomyia*), *Lochmorhynchus*, figs. 10-17



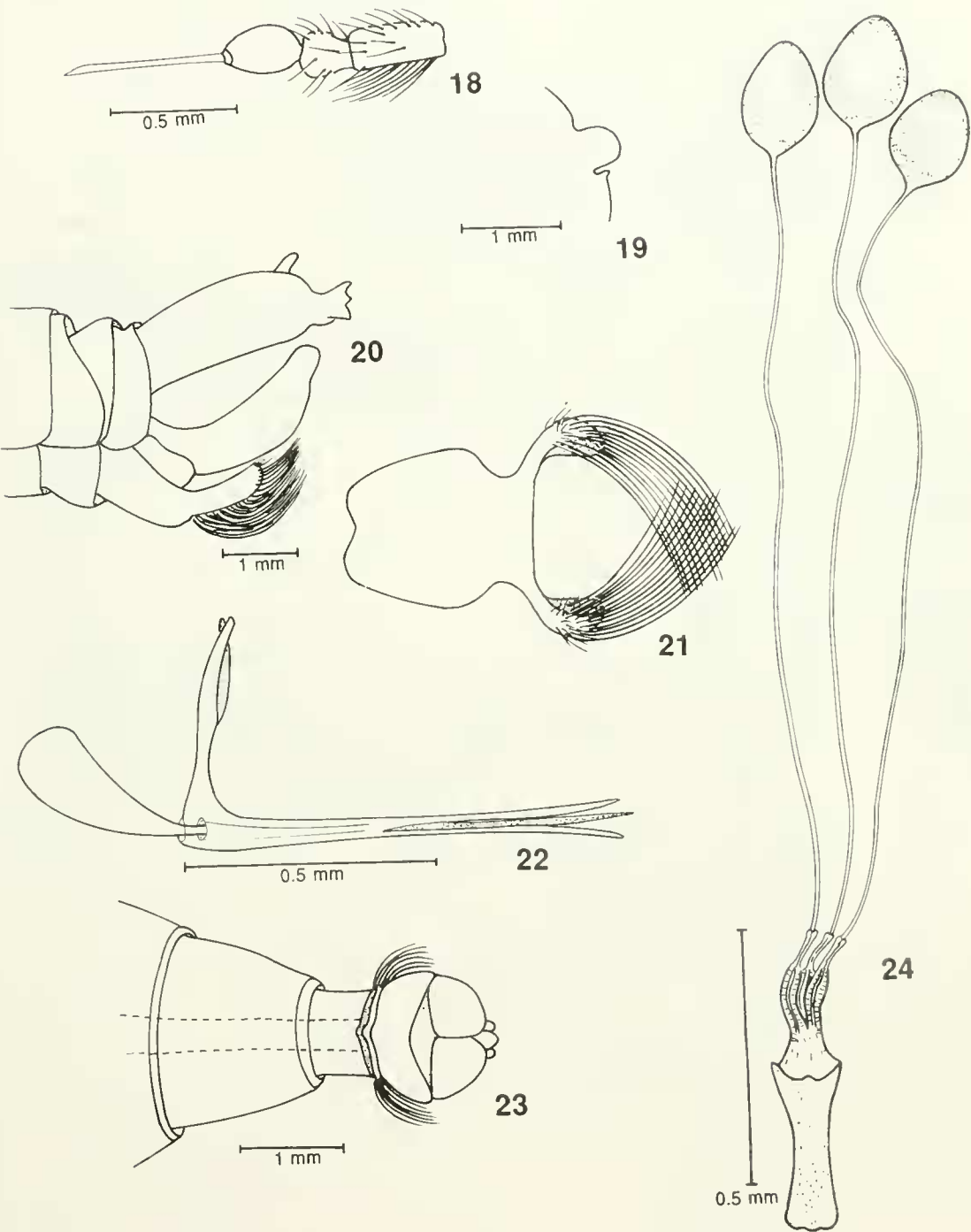
FIGS. 1-6: *Apotinocerus brevistylatus* (Wulp). 1: antenna; 2: profile of scutellum; 3-5: male terminalia in lateral, dorsal and ventral views; 6: aedeagus.



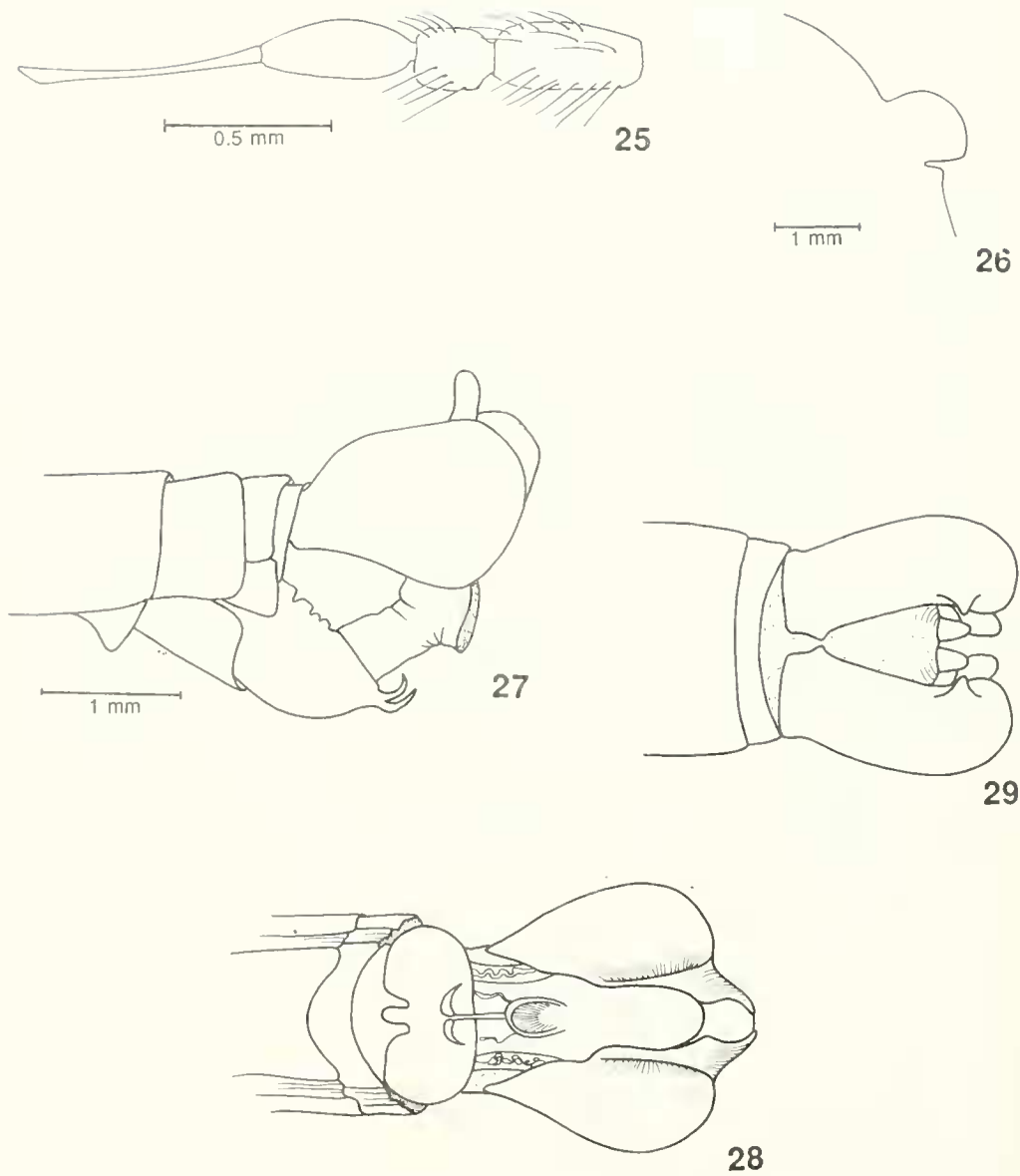
FIGS. 7-9: *Apotinocerus brevistylatus* (Wulp). 7: female terminalia, ventral view; 8: do., lateral view, showing situation of spermathecae; 9: spermathecae.



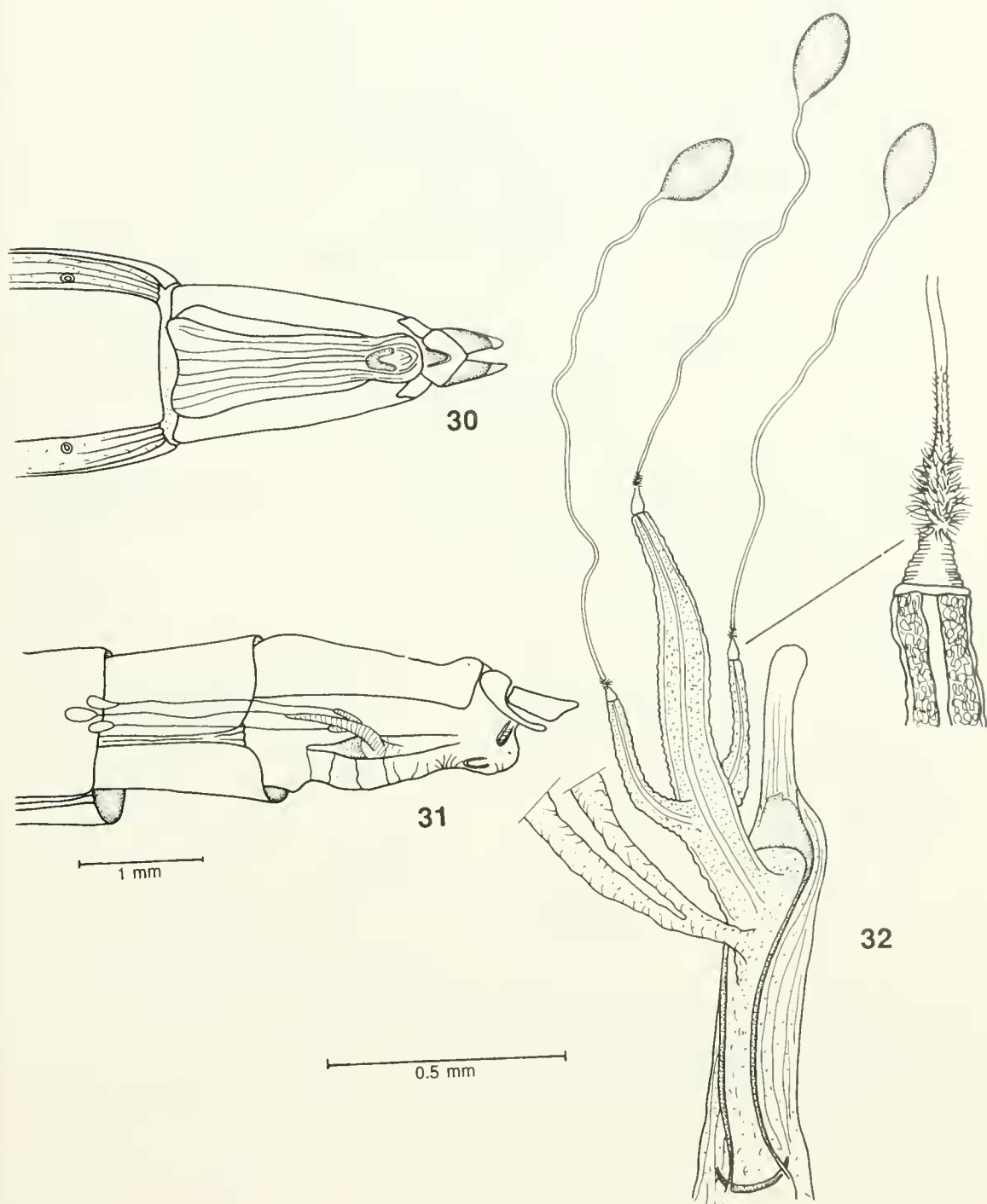
FIGS. 10-17: *Lochmorhynchus tumbrensis* (Artigas). 10: antenna; 11: profile of scutellum; 12-13: male terminalia in lateral and dorsal views; 14: aedeagus; 15: female terminalia, lateral view (showing situation of spermatheca); 16: apex of female terminalia, dorsal view; 17: spermathecae.



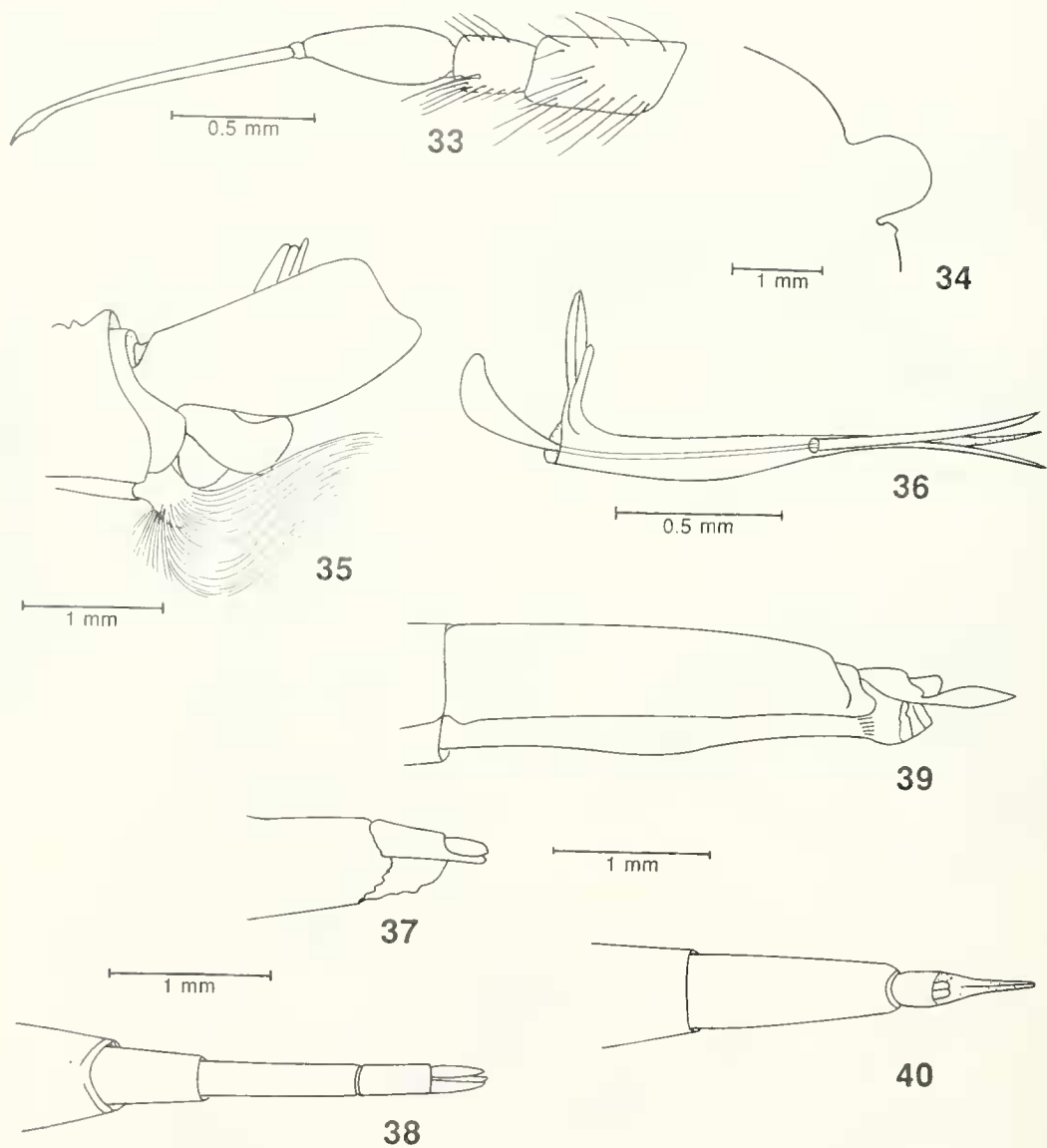
Figs. 18-24: *Lochmorhynchus mucidus* (Walker). 18: antenna; 19: profile of scutellum; 20: male terminalia, lateral view; 21: male sternite 8 (hypandrium), ventral view; 22: aedeagus; 23: female terminalia, dorsal view; 24: spermathecae.



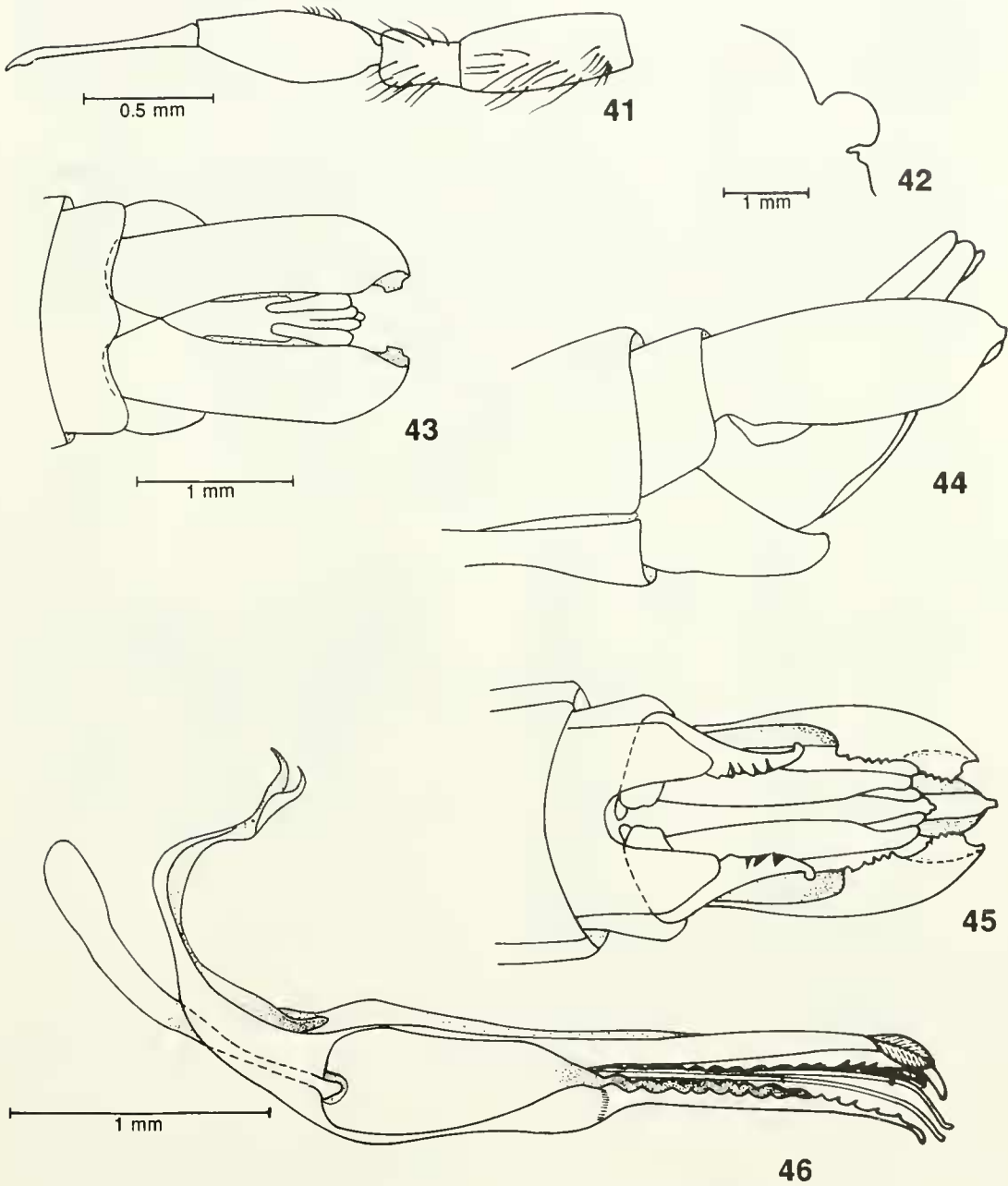
Figs. 25-29: *Lochmorhynchus albicans* (Carrera & d'Andretta). 25: antenna; 26: profile of scutellum; 27-29: male terminalia in lateral, ventral and dorsal views.



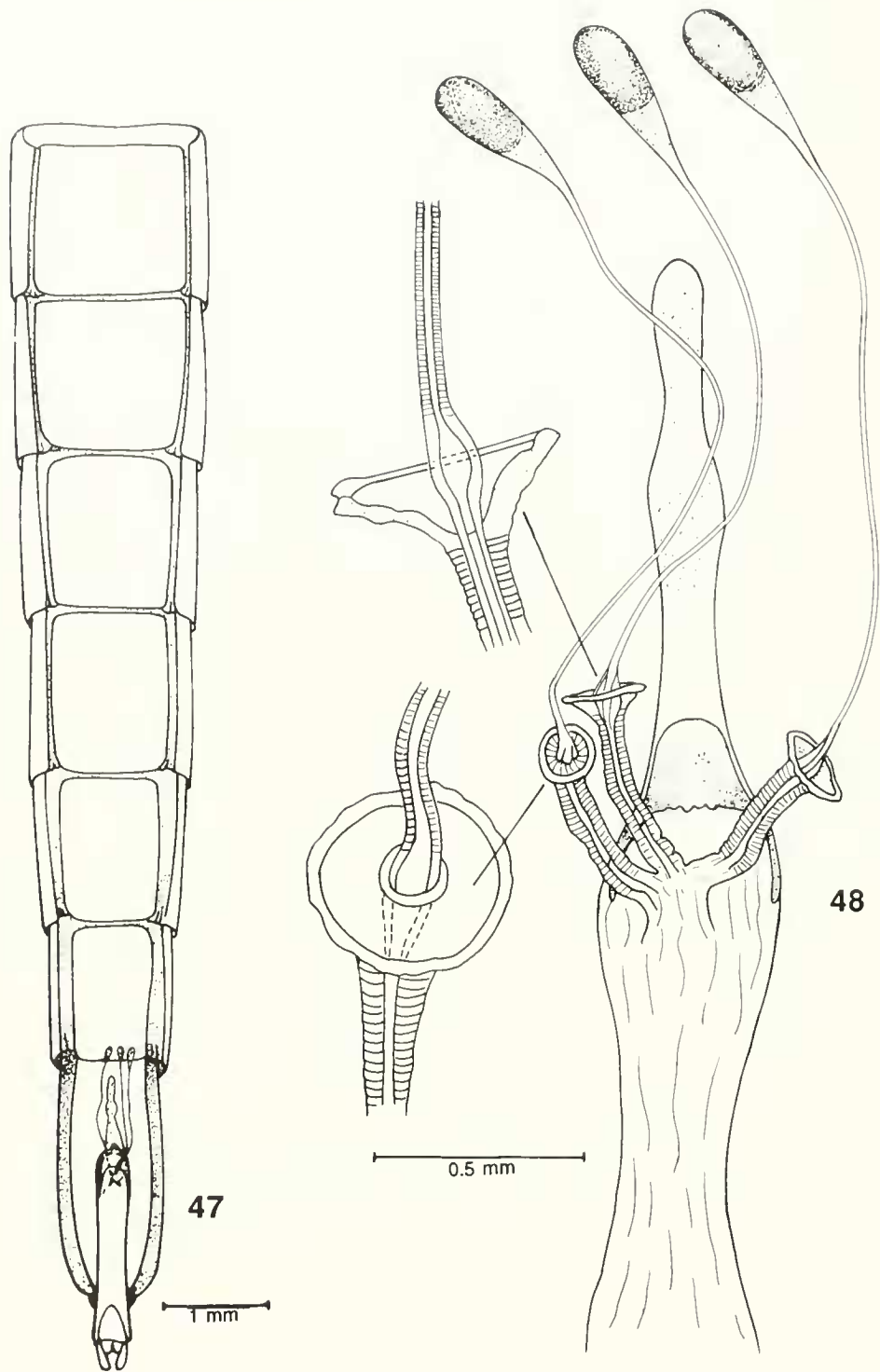
FIGS. 30-32: *Lochmorhynchus albicans* (Carrera & d'Andretta). 30: female terminalia, dorsal view; 31: do., lateral view, showing situation of the spermathecae; 32: spermathecae.



FIGS. 33-38: *Lochmorhynchus borrori* Artigas. 33: antenna; 34: profile of scutellum; 35: male terminalia, lateral view; 36: aedeagus; 37-38: female terminalia, lateral and dorsal views. FIGS. 39-40: *I. griseus* (Guérin-Ménéville). 39-40: female terminalia, lateral and dorsal views.



FIGS. 41-46: *Lochmorhynchus* sp. (Argentina). 41: antenna; 42: profile of scutellum; 43-45: male terminalia in dorsal, lateral and ventral views; 46: aedeagus.



FIGS. 47-48: *Lochmorhynchus* sp. (Argentina). 47: female abdomen, ventral view, showing situation of spermathecae; 48: spermathecae.